

PLEASE I BOOK EXPLOITATION 507/3553
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Academiya nauk URSR. Institut teploenergetiki

Teploobmen i gidrodinamika (Heat transfer and hydrodynamics) Kiev, 1958. 190 p. (Series: Its: Sbornik trudov, no. 14) 2,000 copies printed.

Eds.: M.I. Yefimov; Editorial Board: I.T. Svetits (Resp. Ed.), Academician, Academy of Sciences URSR; G.M. Shtegolev (Deputy Resp. Ed.), Candidate of Technical Sciences; N.M. Kondak (Resp. Secretary), Candidate of Technical Sciences; V.I. Tolubinskiy, Corresponding Member, Academy of Sciences URSR; I.I. Gornobay, Candidate of Technical Sciences; N.M. Kuznetsov, Candidate of Technical Sciences; P.I. Lavrov, Candidate of Technical Sciences; S.P. Shvetsov, Professor; and N.M. Pyryashkin, Candidate of Technical Sciences.

PURPOSE: This collection of articles is intended for scientific workers and technical personnel in the fields of heat transfer and hydrodynamics.

CONTENTS: This collection of 18 articles deals with experimental and theoretical studies of problems in heat transfer and hydrodynamics as they arise in steam and gas turbines and heat-transfer devices. The results of theoretical investigations of heat transfer in turbine components and in elements of heat-utilizing apparatus are described, and new calculation methods are suggested. Several problems of the thermodynamics and aerodynamics of steam and gas turbines are discussed. References follow each article.

Palitstva, S.A. Investigation of the Amount of Heat Given off When Aqueous Solutions of Lithium Bromide and Lithium Chloride are Boiled Under Vacuum 57

The paper deals with a study of the heat-transfer coefficient for aqueous solutions of LiBr and LiCl under conditions of boiling under vacuum. The effects of the concentration of the solution, the ambient pressure, and other parameters are determined.

Maronch, I.Ye. Approximate Method of Calculating Velocity and Temperature Fields for the Case of Laminar Flow of a Compressible Fluid With Heat-Transfer Around an Object 103

Politskiy, M.I. On the Possibility of Reducing the Differential Equations of a Laminar Boundary Layer to Ordinary Differential Equations 117

Shvetsov, P.D., and V.I. Feduchuk. Aerodynamic Investigations of the System of Intercylinder Exchange of Steam in Powerful Steam Turbines 122

The authors present the results of model tests to study inter-cylinder exchange in steam turbines. The study is primarily concerned with the hydraulic losses encountered. Recommendations for reducing the internal drag of the system are given.

Gaberman, I.L. Effect of Manufacturing Defects on End Losses in the Guide Vanes of Welded Turbine Diagrams 131

Gorbaty, Yu.P., A.Sh. Dorfman, and M.I. Surkovskiy. Effect of Reactivity and Pitch on the Magnitude of the Profile Losses in Cascade 148

Saykovskiy, M.I., and A.Sh. Dorfman. Criteria for Estimating the Efficiency of Intake Nozzles 159

Yermolenko, A.S., and A.P. Fedosenko. Losses in Turbine Guide Vanes of the Cascade Type 167

Yermolenko, A.S., and A.P. Fedosenko. Investigation of the Losses in Turbine Blade Cascades 174

The above two papers deal with an investigation of the losses in turbine guide vanes and in turbine blade cascades. The efficiency of the cascade is determined as a function of the inflow angle, blade-incidence angle, blade pitch, and other parameters.

Shvetsov, I.T., V.M. Shtam, and L.I. Romanyuk (deceased). Experimental Investigation of the Heat Conductivity of Soils Used in Greenhouses and Hotbeds 186

AVAILABLE: Library of Congress

Card 7/7

AS/PA/PA
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S/123/60/000/020/016/019
A005/A001

11.7430
Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1960, No. 20, p. 321,
112165

AUTHORS: Nazarchuk, M. M., Pol'skiy, N. I.

TITLE: On the Crisis at the Flow of a Viscous Gas in a Plane-Parallel Channel

PERIODICAL: Tr. Soveshchaniya po prikl. gaz. dinamike, 1956, Alma-Ata, AN KazSSR,
1959, pp. 69-76. Diskus., pp. 75-76

TEXT: The plane-parallel adiabatic motion of a viscous gas is considered in a channel under the assumption that the pressure is constant in every cross section perpendicular to the channel axis. It is shown that the maximum velocity component cannot exceed the sound velocity because the crisis of the stream sets in. The magnitude of the average mass velocity at the critical instant is always lower than the velocity of sound. ✓c

K. V. D.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

POL'SKIY, N.Y.

26.5001

82130
S/124/60/000/002/005/012

Translation from: Referativnyy zhurnal, Mekhanika, 1960, No. 2, p. 49. # 1928

AUTHORS: Gorbatyy, Yu.P., Dorfman, A.Sh., Pol'skiy, N.Y., Saykovskiy, M.I.

TITLE: Aerodynamic Investigation of Exhaust Branch Pipe Models of a Gas Turbine

PERIODICAL: Sb. prats' In-t teploenerg. AN UkrSSR, 1959, No. 16, pp. 25 - 34
(Ukr., Russ. summary)

TEXT: Results of an aerodynamic investigation of models of a gas turbine exhaust branch pipe are presented. The branch pipe consists of a radical ring diffuser, being the main part of the branch pipe, the snail, and the diffuser outlet duct. Some variants of the branch pipe were examined with diffusers having different widening ratios. It turned out that the optimum widening ratio of the diffuser is close to three. The loss factor of this branch pipe proved to be $\xi_{\text{loss}} = 0.53$ (taking into account the losses with outlet velocity). The mounting of annular guide surfaces within the diffuser, aiming at a decrease in the diffuser opening angle, leads to a noticeably lowered loss. The application of such surfaces led in the present case to a decrease of the ξ_{loss} value down to 0.45 and to a pressure recovery factor $\psi = 0.59$ (at the Mach number 0.4 at the branch pipe entrance).

Card 1/1

V.Kh. Abiantz

83143

S/170/60/003/006/007/011
B013/B067

11.9200

AUTHORS: Nazarchuk, M. M., Pol'skiy N. I.

TITLE: Solution of a Thermophysical Problem

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 6,
pp. 76 - 81

TEXT: The problem of heat transfer between liquid or gaseous heat carriers and the solid particles suspended therein was solved by the matrix theory and functional analysis. It is assumed that a heat-insulated tank contains a heat carrier with a weight G , specific heat c_p , and a temperature t_0 . At the time $\tau = \tau_0$ a mixture of solid particles with a temperature $t_0 < t_0$ is filled into the tank. The particles in this mixture are classified into n classes according to their surface. Assuming that heat exchange takes place only between the heat carrier and the particles, it is easy to give a system of equations describing the temperature of the heat carrier and of the particles of n classes. The authors deduce the differential equation (2): $d\theta_k/d\tau = \Delta_k(\theta - \theta_k)$, ($k = 1, 2, \dots, n$),

Card 1/2

L 39292-65 EWT(1)/EWP(m)/EWA(d)/FGS(1)/EWA(1) Pd-1
 ACCESSION NR: AP5010079 UR/0170/65/008/004/0536/0539

AUTHOR: ~~Dorfman, A. Sh.~~ Nazarchuk, M. M.; Pol'skiy, N. I.; Saykovskiy, M. I. ²⁴
₂₃

TITLE: Calculation of diffuser losses

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 4, 1965, 536-539

TOPIC TAGS: diffuser, conical diffuser, curvilinear diffuser, diffuser calculation, diffuser loss

ABSTRACT: Methods of diffuser calculation are briefly reviewed and difficulties in the calculation of wide-angle diffusers with flow separation are stressed. Formulas for the calculation of friction and expansion losses in conical diffusers without flow separation based on the analogy with the flow in pipes are given. The approach to this problem by various authors is described and analyzed. The authors of this article view favorably the attempts to apply the general notions of aerodynamics to the determination of losses in curvilinear diffusers. They also express the opinion that along with the establishment of a general method of calculating viscous fluid flow, engineering calculating methods based on generalized experimental results should be introduced. Orig. art. has: 4 figures.

[AC]

Card 1/2

L 39292-65

ACCESSION NR: AP5010079

ASSOCIATION: Institut tekhnicheskoy fiziki AN UkrSSR, Kiev (Institute of Technical Physics, AN UkrSSR)

SUBMITTED: 26 May 64

ENCL: 00

SUB CODE: PR, ME

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OTHER: 001

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Card 2/2

L-57879-65 EWP(m)/EPF(n)-2/ENT(1)/EWA(d) Pd-1/Pu-1 IJP(c) WW

ACCESSION NR: AP5014178

UR/0382/6/000/001/0067/0072
538.95 : 538.4 : 621.362

AUTHOR: Zelichenko, Ye. N.; Millervan, T. Ye.; Pol'skiy, N. I.

TITLE: Optimum regimes of magnitogasdynamic flows in channels with Hall effect

SOURCE: Magnitnaya gidrodinamika, no. 1, 1965, 61-72

TOPIC TAGS: magnetohydrodynamics, MHD generator, Hall effect, conducting gas

ABSTRACT: The delivery of maximum power by the electrodes of a system consisting of conducting gas is discussed. Retaining the Hall effect, several physically justified simplifications are made to permit analytic treatment. The problem is solved by finding a unique extremum value of the generated power for a fixed exit pressure. The method is a generalization of one used by N. I. Pol'skiy (*Teplofizika B^hsoikkh* *Temperatur*, 1964, 2, 2, 238). The parameter equation is derived giving the conditions that do not permit the existence of the generator regime. Both cases with sectioned and continuous electrodes are considered and the one-dimensional approximation is evaluated for each situation. The case where Hall effect is significant is shown to be the so-called Hall short-circuiting as employed with sectioned electrodes. Orig. art. has: 10 formulas, 5 figures.

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ACCESSION NR: AP5014178		
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POL'SKAYA, N.M.; MAYERGOYZ, I.M., red.; OVASAPYAN, A.A., tekhn. red.

[Economic geography of Great Britain; textbook] Ekonomicheskaya
geografiya Velikobritanii; uchebnoe posobie. Pod red. I.M.Maier-
goiza. Moskva, Izd-vo Mosk. univ., 1960. 133 p. (MIRA 14:7)
(Great Britain--Economic geography)

POL'SKIY, B.N.

Chemistry of ortsteins in turf-Podzolic soils. Pochvovedenie
no. 2:93-96 F '61. (MIRA 14:2)

1. Sumskiy pedagogicheskiy institut.
(Podzol) (Minerals in soil)

POL'SKIY, N.I.

Adiabatic flows of a conducting gas in channels. Teplofiz. vys. temp.
2 no.2:238-242 Mr- Ap '64. (MIRA 17:6)

1. Institut tekhnicheskoy teplofiziki Akademii nauk SSSR.

ACCESSION NR: AP4024189

S/0294/64/000/001/0053/0057

AUTHOR: Pol'skiy, N. I.; Shchegolev, G. M.

TITLE: Isothermal flow of conducting gas in channels

SOURCE: Teplofizika vy*sokikh temperatur, no. 1, 1964, 53-57

TOPIC TAGS: magnetohydrodynamics, isothermal conducting gas flow, one dimensional gas flow, channelled conducting gas flow, flow in crossed fields, power generation, effect of induced field, Reynolds number, magnetic Reynolds number, electric field variation, friction effect

ABSTRACT: Although the one-dimensional differential equations for the stationary flow of a conducting gas in crossed fields are known and can be solved numerically for specified boundary conditions, it is shown to be advisable to check, before undertaking the laborious calculations, that the flow in question can actually be described by theoretical equations, since the accuracy of the one-dimensional scheme cannot exceed the accuracy with which the electric field intensity or the induced field is maintained constant or the

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ACCESSION NR: AP4024189

extent to which the magnetic Reynolds number remains small. The author therefore derives in dimensionless form, by variational means, relations for the extremal values of the power generated by the stream, the pressure ratio, and the electric field intensity. The effects of the induced magnetic field (the magnetic Reynolds number), of the pressure dependence of the conductivity, and of friction are also taken into account. It is pointed out that for isothermal flow with constant velocity the dimensionless field intensity is a measure of the thermal efficiency and that the dimensionless pressure ratio is a measure of the channel broadening. 'The authors are grateful to Z. P. Bogdanovich and T. Ye. Milleryan for performing all the calculations connected with this work.' Orig. art. has: 3 figures and 22 formulas.

ASSOCIATION: Institut tekhnicheskoy teplofiziki AN UkrSSR (Institute of Technical Thermophysics, AN UkrSSR)

SUBMITTED: 27Sep63

DATE ACQ: 16Apr64

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Card 2/3 ✓

POL'SKIY, N.I.; GOKHBERG, I.TS.; DYNIN, A.S.; SOLOMYAK, M.Z.; VILENKIN, N.Ya.;
BRODSKIY, M.L.; SKLYARENKO, Ye.G.

Summaries of papers accepted for publication by the Moscow
Mathematical Society. Usp. mat. nauk 18 no.2:179-188 Mr-Apr
'63. (MIRA 16:8)

(Moscow--Mathematical societies)

POL'SKIY, N. [Pol's'kiy, N.], kand.fiziko-matem.nauk

Geometry and real space. Nauka i zhyttia 12 no.4:15-17 Ap '62.
(MIRA 15:8)

(Geometry, Modern)

POL'SKIY, Naftul Iosifovich; TITOVA, N.M., red.; KADASHEVICH, O.A.,
tekh. red.

[On the various geometries] O razlichnykh geometriyakh. Izd. 2.,
dop. i perer. Kiev, Izd-vo Akad. nauk USSR, 1962. 99 p.
(MIRA 15:9)

(Geometry)

DORFMAN, A.Sh. (Kiyev); POL'SKIY, N.I. (Kiyev); SAYKOVSKIY, M.I. (Kiyev)

Concerning the drawing-off of the boundary layer in annular
diffusers. Izv. AN SSSR. Otd. tekhn. nauk. Energ. i avtom.
no.6:156-162 N-D '61. (MIRA 14:12)
(Diffusers)

S/020/62/143/004/003/027
B112/B102

16.6500

AUTHOR: Pol'skiy, N. I.

TITLE: Projective methods in applied mathematics

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 4, 1962, 797-790

TEXT: A so called projective method to solve the operator equation $Lx = f$, $x \in H_1$, $f \in H_2$ is investigated. A sequence of projection operators P_n is said to be projectively complete in a Hilbert space H if $|f - P_n f| \rightarrow 0$ ($n \rightarrow \infty$) for each $f \in H$. A sequence $L_n = LR_n$, where R_n are finite-dimensional subspaces of H_1 , is assumed to be projectively complete in H_2 . The sequence L_n is transformed into a projectively complete sequence $M_n = P_n L_n$ by orthogonal projection. The solution x of the equation $Lx = f$ is approximated by the solutions $x_n \in R_n$ of the equations $P_n Lx_n = P_n f$. The convergence of this method under a certain

Card 1/2

28330 S/124/61/000/005/016/032
A005/A130

10.3100

AUTHORS: Dorfman, A. Sh., Pol'skiy, N. I., Romanenko, P. N.

TITLE: Self-simulating solutions of equations for the laminar boundary layer in a compressible fluid in the presence of heat exchange

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 5 1961, 73, abstract 5B457.
(Nauchn. tr. Mosk. lesotekhn. in-t, 1958, no. 9, 165 - 174)

TEXT: The authors give a compendium of all possible self-simulating solutions of the problem of a laminar compressible boundary layer with a pressure gradient and heat exchange; they apply Dorodnitsyn variables. For a Prandtl number $P \neq 1$, self-simulating can be obtained only under the conditions $u_1 = \text{const}$ and $T_w = \text{const}$ (u_1 is the velocity outside the layer, T_w is the wall temperature). For $P = 1$, self-simulating solutions are possible only in cases when

- 1) $u_1 = \text{const}, T_w = (\rho + c)^n$
- 2) $u_1 = (a\xi + b)^n, T_w = \text{const}$
- 3) $u_1 = ae^{b\xi}, T_w = \text{const}$

Card 1/2

POL'SKIY, N. I.

PLATE 1 BOOK EXPLANATION SOV/5290
Alma-Ata, 1956

Somechaniye po prikladnoy gazovoy dinamike. Alma-Ata, 1956
Trudy Sverdlovskogo gosudarstvennogo inzhenernogo i tekhnicheskogo universiteta imeni S.M. Kirova (Kazakh State University), Alma-Ata, 1956. (Transl. of the conference on Applied Gas Dynamics, held in Alma-Ata, 23-26 October 1956) Alma-Ata, 1956. 124 pp. 11 illustrations. 900 copies printed.

23 P. Errata slip inserted. 900 copies printed.
Sponsoring Agency: Akademiya nauk Kazakhskoy SSR. Kazakhskiy gosudarstvennyy universitet imeni S.M. Kirova.

Editorial Board: Resp. Ed.: L.A. Vukobratovic; V.P. Kashchayev; T.P. Lemm'yan and S.P. Ustimenko. Ed.: V.V. Alekseyev, S.K. Tech. Ed.: Z.P. Borokina.

PURPOSE: This book is intended for personnel of scientific research institutes and industrial engineers in the field of applied fluid mechanics, and may be of interest to students of advanced courses in the field.

Translations of the Conference (Cont.) SOV/5290

CONTENTS: The book consists of the transcriptions of 31 papers read at the conference on gas dynamics which was convened under the initiative of the Kazakhskiy gosudarstvennyy universitet imeni S.M. Kirova (Kazakh State University) imeni S.M. Kirova and the Institut energetiki Akademii nauk Kazakhskoy SSR. Institute of Power Engineering of the Academy of Sciences Kazakhskoy SSR and held October 23-26, 1956. Three branches of applied gas dynamics were discussed, namely: jet flow of liquids and gases, aerodynamics of turbine components, and the outflow of liquids. The practical significance of the transcriptions of the conference consists in the adaptation of theory to the needs of technical compilation and measuring methods related to industrial problems and other industrial processes in which aerodynamic phenomena play a predominant role. Eight papers read at the conference are not included in this collection for various reasons. The authors of the following papers are: L.D. Lvov (Thermal and Aerodynamic Characteristics of the Jet of a Flame Burner) and A.A. Golevskiy (Outlines and Physical Models of the Jet Motion Mechanics of Fluids), N.I. Akhmetov, Ye. P. Bogdanov, S.V. Bukharov, T.K. Mironenko, A.B. Reznayev, and G.V. Yakubov. L.D. Lvov is presently mentioned as being in charge of a department of the Kazakh State University, and I.D. Malyukov, Candidate of Physical and Mathematical Sciences, Docent, as a member of the same university. References are found at the end of the book.

Session of October 24, 1956 (Morning)

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Translations of the Conference (Cont.) SOV/5290

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Card 5/6

GORBATYY, Yu.P. [Horbatiy, Yu.P.]; DORFMAN, A.Sh.; POL'SKIY, N.I. [Pol'skiy, N.I.]; SAYKOVSKIY, M.I. [Saikova'skiy, M.I.]

Aerodynamic study of models of gas-turbine exhaust nozzles. Zbir.
prats' Inst.tepl. AN URSR no.16:25-34 '59. (MIRA 13:10)
(Gas turbines--Aerodynamics) (Nozzles)

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S/020/61/136/005/011/032
B104/B204

AUTHORS: Pol'skiy, N. I. and Shvets, I. T., Academician AS UkrSSR

TITLE: Progressive solutions of laminar boundary-layer equations in magnetohydrodynamics

PERIODICAL: Doklady Akademii nauk SSSR, v. 136, no. 5, 1961, 1051-1054

TEXT: For an incompressible liquid, the laminar boundary-layer equation may be written down in the form

$$u \frac{\partial u}{\partial x} + v \frac{\partial u}{\partial y} = -\frac{1}{\rho} \frac{dp}{dx} + \nu \frac{\partial^2 u}{\partial y^2} - \frac{\sigma}{\rho} B^2 u; \quad \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0; \quad (1)$$

$$u \frac{\partial \theta}{\partial x} + v \frac{\partial \theta}{\partial y} = \frac{\nu}{Pr} \frac{\partial^2 \theta}{\partial y^2} + \nu \left(\frac{\partial u}{\partial y} \right)^2 + \frac{\sigma}{\rho} B^2 u^2.$$

Here, $\theta(x,y)$ is the difference between the enthalpy of the mass unit at any point and in the outer flow; the last two terms in the energy equations characterize the viscous and the Joulean dissipation. The boundary conditions are: $u(x,0) = v(x,0) = 0$; $u(x,\infty) = U_e(x)$; $\theta(x,0) = \tau(x)$; $\theta(x,\infty) = 0$.

(2). The function $U(x)$ is now defined with the aid of the equation

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Progressive solutions of...

$-1dp/qdx = UU'$, and it is found that this function differs from the distribution of the velocities $U_e(x)$ on the boundary layer if there exist volume forces which are produced by a magnetic field in the outer flow. The distributions of $U(x)$ and $\tau(x)$ are now sought, at which the equations of system (1) may be reduced to ordinary differential equations with the help of a similarity transformation via the velocity profiles and the enthalpies. The interrelation between $U(x)$ and $U_e(x)$ is found. By means of substitutions (3), the equation of continuity and the two other equations of the system (1) may be written down in the form of the system

$$u(x, y) = U\varphi'(\xi); \quad \xi = yK(x); \quad \theta(x, y) = \tau(x)g(\xi); \quad (3)$$

$$v(x, y) = \left\{ \frac{UK'}{K^2} - \frac{U'}{K} \right\} \varphi(\xi) - \frac{UK'}{K} \xi \varphi'(\xi).$$

$$\varphi'' - \left\{ 1 - \frac{UK'}{U'K} \right\} \varphi \varphi' = 1 + \nu \frac{K^2}{U'} \varphi'' - \frac{\sigma}{\rho} \frac{B^2}{U'} \varphi'; \quad (4)$$

$$\frac{U\tau'}{U'\tau} g\varphi' - \left\{ 1 - \frac{UK'}{U'K} \right\} g'\varphi = \frac{\nu}{\rho\tau} \frac{K^2}{U'} g'' + \frac{\sigma}{\rho} \frac{B^2}{U'} \frac{U^2}{\tau} \varphi'^2 + \nu \frac{U^2}{\tau} \frac{K^2}{U'} \varphi''^2.$$

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Progressive solutions of...

It may easily be seen that this system is nothing but the system of ordinary differential equations if with a suitable normalization function $K(x)$ the following holds:

$1 - UK'/U'K = 1/\beta$; $\gamma = K^2/U' = 1/\beta$; $U^2/\tau = \alpha$; $U\tau'/U'\tau = \gamma$ (5). On the assumption that the magnetic field strength B on the wall is described by the function $B_w(x)$, which changes in the Y -direction in inverse proportion

to the s -th power of y , and that further the relation $B_e(x)/B_w(x) = m$,

which characterizes the attenuation of the field across the flow, does not depend on x , it is necessary for obtaining progressive solutions that for the magnetic parameter the following holds:

$\int = \frac{\sigma B_w^2}{\rho U'} \beta$. On these assumptions, the boundary conditions (2) and the Eq. (4) assume the form:

$$\varphi'' + \varphi\varphi'' = \beta(\varphi'^2 - 1) + \zeta\varphi' \left\{ m + \frac{1-m}{(1+\xi)^s} \right\}^2; \quad (7)$$

$$\frac{1}{Pr} g'' + g'\varphi - \beta\gamma g\varphi' + \alpha\varphi'^2 + \alpha\zeta\varphi'^2 \left\{ m + \frac{1-m}{(1+\xi)^s} \right\}^2 = 0; \quad (8)$$

$$\varphi(0) = \varphi'(0) = 0; \quad \varphi'(\infty) = C; \quad g(0) = 1; \quad g(\infty) = 0. \quad (9)$$

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Progressive solutions of...

Furthermore, the authors show a way of obtaining analogous results for a compressible liquid. In this, they proceed from the boundary-layer equation

$$\rho \left(u \frac{\partial u}{\partial x} + v \frac{\partial u}{\partial y} \right) = - \frac{dp}{dx} + \frac{\partial}{\partial y} \left(\mu \frac{\partial u}{\partial y} \right) - \sigma B^2 u; \quad (10)$$

$$\rho \left(u \frac{\partial \theta}{\partial x} + v \frac{\partial \theta}{\partial y} \right) = \frac{1}{Pr} \frac{\partial}{\partial y} \left(\mu \frac{\partial \theta}{\partial y} \right); \quad \frac{\partial(\rho u)}{\partial x} + \frac{\partial(\rho v)}{\partial y} = 0.$$

with which the Joulean dissipation is neglected for the purpose of simplification, and where ~ 1 holds for Pr . The new variables

$X = \int_0^x (p/p_0)^r dx$ and $Y = \int_0^y (q/q_0) dy$ (11) are introduced, which are analogous

to Dorodnitsyn variables. By means of the substitution

$V = u(p_0/p)^r \partial X / \partial x + v(p_0/p)^{r-1} T_0 / T$ and by introduction of dimensionless variables, the system

$$u \frac{\partial u}{\partial X} + V \frac{\partial u}{\partial Y} = (\theta + 1 - u^2) \frac{UU'}{1 - U^2} + (1 - U^2)^{-\delta} \frac{\partial^2 u}{\partial Y^2} - \frac{\sigma B^2}{\rho_0} u (\theta + 1) (1 - U^2)^{-\delta-1}; \quad (12)$$

$$\frac{\partial u}{\partial X} + \frac{\partial V}{\partial Y} = 0; \quad u = \frac{\partial \theta}{\partial X} + V \frac{\partial \theta}{\partial Y} = (1 - U^2)^{-\delta} \frac{1}{Pr} \frac{\partial^2 \theta}{\partial Y^2}; \quad \delta = \frac{k(\alpha - 1)}{k - 1}.$$

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L 27883-65 EWT(1)/EWP(m)/EPA(sp)-2/EWA(v)/EWA(d)/EPR/EPA(w)-2/T-2/EWA(m)-2
Pd-1/Pab-10/Pe-5/Ps-4/Pi-4 IJP(c) G3

ACCESSION NR: AT5004228

S/0000/64/000/000/0227/0229 61

AUTHOR: Pol'skiy, N. I.

TITLE: Concerning one condition for the acceleration of magnetogasdynamic streams 60 B+1

SOURCE: AN UkrSSR. Institut tekhnicheskoy teplofiziki. Teplofizika i teplotekhnika (Thermophysics and heat engineering). Kiev, Naukova dumka, 1964, 227, 229

TOPIC TAGS: magnetohydrodynamics, mhd flow, magnetogasdynamics, mgd generator, mgd hypersonic flow

ABSTRACT: The author presents a very simple criterion for determining the sign of the acceleration of magnetogasdynamic flow in a rectangular channel of constant area. The distances between the magnet poles and between the load terminals can vary along the channel axis. The electrodes can be sectionalized so that the voltage across them can be a function of the channel length. Integration of the magnetohydrodynamic equations under idealized one-dimensional conditions shows that in any given section of the channel, a subsonic stream is accelerated either when power is drawn from the channel, or when power exceeding a certain critical

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ACCESSION NR: AT5004228

value (per unit channel length) is delivered to the channel. When a lower value of the power is supplied, the subsonic stream will be decelerated. The reverse is observed in the case of supersonic flow. The critical power is equal to $V^2 \sigma / \gamma y$, where V is the voltage, γ the isentropic exponent, y the distance between electrodes, and σ the conductivity. Orig. art. has: 7 formulas.

ASSOCIATION: Institut tekhnicheskoy teplofiziki AN UkrSSR (Institute of Technical Thermophysics of UkrSSR)

SUBMITTED: 10Aug64

ENCL: 00

SUB CODE: TD, ME

NR REF SOV: 002

OTHER: 002

Card 2/2

L 26479-66 EWT(d) IJP(c) GS
ACC NR: AT6008142

UR/0000/65/000/000/0037/0041

AUTHOR: Pol'skiy, N.I.

ORG: None

TITLE: On the automodeling solutions of the Mises equation

SOURCE: AN UkrSSR. Tekheniya zhidkosty i gazov (Flows of liquids and gases). Kiev, Naukova dumka, 1965, 37-41

TOPIC TAGS: Prandtl boundary layer, boundary layer theory

ABSTRACT: This paper is a study of automodeling solutions of the Mises boundary layer equation. The author introduces the transformation

$$F(x, \psi) = g(x, \psi) - p(x) \quad (1)$$

into the Mises equation (2), shown as obtainable from the Prandtl's equation by another transformation

$$u = \partial \psi / \partial y ; g = p(x) - \rho u^2 / 2$$

The Mises equation is written as

$$\partial g / \partial x = \mu \cdot u \cdot \partial^2 g / \partial \psi^2 \quad (2)$$

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Here, μ - is the dynamic viscosity and $u = u(x, y)$ - the tangential boundary layer velocity. The result is the equation

$$\partial F / \partial x + p' = \mu \sqrt{(2/\rho) \cdot \rho \partial^2 F / \partial y^2} \quad (3)$$

with suitable boundary conditions. The automodeling condition is now specified as the condition for the existence of functions $K(x)$, $L(x)$, such that

$$F(x, \gamma) = K \cdot F(x^*, L\gamma) \quad (4)$$

for any arbitrary fixed points on the profile, x^* and x . Analysis leads to the conclusion that the classes of automodeling solutions of the equation of Prandtl and of Mises completely correspond. Orig. art. has: 18 formulas.

SUB CODE: 20 / SUBM DATE: 11May64 / ORIG REF: 002 // OTH REF: 002

Card 2/2

PB

NAZARCHUK, Mikhail Mikhaylovich; POL'SKIY, N.I., kand.fiz.-matem.nauk,
otv.red.; LABINOV, S.D., red.; BABENKO, R.Yu., tekhn.red.

[Gas flow in pipes and heat transfer] Tsuchenija gaza v kana-
lakh pri nalichii teploobmena. Kiev, Izd-vo AN Ukr.SSR,
1963. 121 p. (MIRA 16:8)
(Gas flow) (Heat--Transmission)

POL'SKIY, N. I. POL'SKI, N. I.

SUBJECT USSR/MATHEMATICS/Functional analysis CARD 1/2 PG - 622
AUTHOR POL'SKI N.I.
TITLE On a general scheme of application of approximative methods.
PERIODICAL Doklady Akad. Nauk 111, 1181-1184 (1956)
reviewed 2/1957

The author states that a great number of approximative methods (Ritz, Galerkin, Krylov, Petrov etc.) can be described function-theoretically as follows: In a certain space the equation $Kx = f$ (K - an operator) is considered. The approximative solution x_n is sought in a certain subspace R_n . For this aim the initial equation is projected onto the subspace M_n by aid of an operator of projection P_n . The approximative equation then is $P_n K x_n = P_n f$. The author proves that for a suitable choice of the subspaces R_n and M_n and of the operator P_n every linear equation $Kx = f$ can be solved with this method if the operator K^{-1} is bounded. The conditions for the choice of R_n , M_n , P_n in general depend on K and permit a sufficient freedom for the choice. But if these conditions are not observed, then in general $Kx = f$ is not allowed to be solved with this method, because just these conditions are the supposition for the convergence of the methods. After the formulation of his very general theorem the author proves that

POL'SKIY, N.I.

Application of similarity to the solution of equations of a laminar boundary layer in a noncompressible liquid in the presence of heat exchange. Izv.vys.ucheb.zav.; av.tekh. 2 no.3:13-15 '59. (MIRA 12:12)

1. Institut teploenergetiki AN USSR.
(Fluid dynamics)

DORFMAN, A.Sh., kand.tekhn.nauk; POL'SKIY, N.I., kand.fiz.-mat.nauk;
ROMANENKO, P.N., prof., doktor tekhn.nauk

Simulating solutions of laminar boundary-layer equations of a
compressible liquid associated with heat exchange. Nauch.trudy.
METI no.9:165-174 ' 58. (MIRA 11:12)
(Boundary layer) (Differential equations)

POL'SKIY, N. I.

Pol'skiy, N. I. On a general scheme of application of approximation methods. Dokl. Akad. Nauk SSSR (N.S.) 111 (1966), 1181-1184. (Russian)

The approximation methods of Ritz, Galerkin, N. M. Krylov, and others are subsumed in a "generalized" result which has its fair share of restrictions. The distillation of their work takes a Banach space form as follows: Let K be a linear operator from E_1 onto E_2 . Assume that $\{\psi_i\}$ is a countable set in E_1 such that the set $\{K\psi_i\}$ is linearly independent and linearly dense in $E_2 (= KE_1)$. Let $\{\varphi_i\}$ be linearly independent and linearly dense in E_2 and let M_n be the space spanned by $\varphi_1, \dots, \varphi_n$ and L_n the space spanned by $K\psi_1, \dots, K\psi_n$. Let P_n be a projection on M_n . If for some n_0 there is a constant C for which $\|y\| \leq C\|P_{n_0}y\|$, $y \in L_{n_0}$, then solutions X_n of the equations $P_n KX_n = P_n f$ converge to a solution of $KX = f$.

B. Gelbaum (Muncie, Minn.).

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Pol'skiy, N.I.

AUTHORS: Pol'skiy, N.I. (Pol's'kiy), and Selyavin, G.F. (H.F.) 21-6-6/22

TITLE: Reliability of Power Systems with an Emergency Reserve (Nadezhnost' v energosistemakh s avariynym rezervom)

PERIODICAL: Dopolvidi Akademii Nauk Ukrain's'koi RSR, 1957, No 6, pp 558-561 (USSR)

ABSTRACT: To calculate the emergency reserve in power systems, it is of great importance to have some reliability criteria for them. Such criteria are usually the reliability of system operation and the amount of deficiency in supplying electric power during an emergency case. The existing methods of estimating the reliability of power systems are based on some statements of the probability theory. All known publications in this field have failed to take into consideration the possibility of a breakdown of the reserve units which replaced the damaged ones. Therefore, the results obtained in many cases are not satisfactory. The paper furnishes rigorous recurrent formulas for determination of the reliability of power system operation and the amount of energy supply in case of emergency.

Card 1/2

There are 3 Slavic references.

SOV/170-59-4-2/20

10(3, 6)

AUTHORS: Dorfman, A.Sh., Pol'skiy, N.I., Saykovskiy, M.I.

TITLE: On One Characteristic of Local Expansion of Diffusor Channels
(Ob odnoy kharakteristike lokal'nogo rasshireniya diffuzornykh kanalov)

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 4, pp 8-14 (USSR)

ABSTRACT: The problem of determining the losses in diffusor channels of arbitrary configuration is at present very difficult as the nature of their origin is complicated. The authors attempt to establish one very general characteristic suitable for investigating diffusors of any shape and demonstrate its applicability to the study of radial-ring diffusors of gas turbine exhaust pipes. They introduce a concept of the local expansion angle of an arbitrary diffusor defined as follows:

$$\theta = 2 \arctg \left\{ \frac{1}{u} \frac{dF}{ds} \right\}$$

where u is the circumference of a section being equal to πD ; F is the area of the local cross section, and s is the lengthwise coordinate. This concept makes it possible to apply the results obtained in investigations of conic-shaped diffusors

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SOV/170-59-4-2/20

On One Characteristic of Local Expansion of Diffuser Channels

ASSOCIATION: Institut teploenergetiki AN USSR (Institute of Thermal Power Engineering of the AS UkrSSR), Kiyev

Card 3/3

POL'SKIY, N.I. [Pol's'kiy, N.I.]; SELYAVIN, G.F. [Seliavin, H.F.]

Reliability of power systems with emergency reserves. Dop.
AN URSR no.6:558-561 '57. (MIRA 12:4)

1. Institut teploenergetiki AN USSR. Predstavil akademik AN
USSR I.T. Shvets [I.T.Shvets'].
(Electric power plants)

DORFMAN, Abram Shlemovich; NAZARCHUK, Mikhail Mikhaylovich; POL'SKIY, Naftul Iosifovich; SAYKOVSKIY, Mikhail Il'ich; SHVETS, I.T., akademik, red.; KISINA, I.V., ed.izd-va; RAKHLINA, N.P., tekhn.red.

[Aerodynamics of diffusers and exhaust nozzles of turbomachines]
Aerodinamika diffuzorov i vykhlopnykh patrubkov turbomashin.
Pod red. I.T.Shvetsa. Kiev, Izd-vo Akad.nauk USSR, 1960. 187 p.
(MIRA 13:6)

1. AN USSR (for Shvets).
(Turbomachines)

POLUBOYARINOV, Dmitriy Nikolayevich, prof.; BALKEVICH, Viktor L'vovich;
POPIL'SKIY, Rafail Yakovlevich; GUZMAN, M.A., red.izd-va; TEMKINA,
Ye.L., tekhn.red.

[High-alumina ceramic and refractory materials] Vysokoglinenoze-
mistye keramicheskie i ognepurnye materialy. Pod red. D.N.Polubo-
iarinova. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.
materialam, 1960. 231 p. (MIRA 13:7)
(Ceramic materials) (Refractory materials)

NAZARCHUK, M.M. (Kiyev); POL'SKIY, N.I. [Pol's'kiy, N.I.] (Kiyev)

Establishing a Poiseuille flow. Prikl. mekh. 4 no. 4: 442-446
'58.

(MIRA 11:12)

1. Institut teploenergetiki AN USSR.
(Viscosity)

POL'SKIY, N.I.

Possibility for reducing the differential equations of a laminar
boundary layer to ordinary differential equations. Trudy Inst.
tepl. AN URSR no.14:117-121 '58. (MIRA 12:4)
(Differential equations) (Boundary layer)

DORFMAN, A.Sh.; POL'SKIY, N.I.; SAYKOVSKIY, N.I.

Characteristics of local expansion of diffuser channels [with
summary in English]. Inzh.-fiz. zhur. no.4:8-14 Ap '59.

(MIRA 12:5)

1. Institut teploenergetiki AN USSR, g.Kiyev.
(Diffusers)

POL'SKIY, N. Y.

SOV/124-58-4-4388

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 4, p 99 (USSR)

AUTHOR: Pol'skiy [Pol's'kyy, N. Y.]

TITLE: On the Necessary and Sufficient Conditions for the Convergence of a Generalization of Galerkin's Method (O neobkhodimykh i dostatochnykh usloviyakh skhodimosti odnogo obobshcheniya metoda Galerkina) in Ukrainian.

PERIODICAL: Nauk. zap. Zhytomyrsk. derzh. ped. in-t. Ser. fiz.-matem. 1957, Vol 3, pp 107-111

ABSTRACT: The article demonstrates that the sufficient conditions for the convergence of the Galerkin - Petrov method, as found by the author in his paper on "O skhodimosti priblizhennykh metodov tipa Galerkina". (The Convergence of Approximate Methods of the Galerkin Type) [Kiyevskiy universitet, 1950] are also necessary.

1. Approximate computations

N. A. Kil'chevskiy

Card 1/1

AUTHOR: Dorfman, A.Sh., Pol'skiy, N.I., and 40-22-2-19/21
Romanenko, P.N. (Kiev)

TITLE: Similar Solutions of the Equations of a Laminar Boundary Layer
in a Compressible Liquid in Presence of Heat Exchange
(Avtomodel'nyye resheniya uravneniy laminarnogo pogranichnogo
sloya v szhimayemoy zhidkosti pri nalichii teploobmena)

PERIODICAL: Prikladnaya matematika i mekhanika, 1958, Vol 22, Nr 2,
pp 274-279 (USSR)

ABSTRACT: For the solution of different problems of boundary layer theory
the partial differential equations were frequently transformed
into ordinary ones. In this way it was possible to find similar
solutions of the boundary layer theory. For the case of an in-
compressible liquid without heat exchange these similar solu-
tions have been completely treated. For the case of the plate
boundary layer also similar solutions for compressible liquids
have become known. In the present paper the authors now in-
vestigate the case of a compressible liquid and in doing so
they assume the existence of heat exchange. All similar
solutions of the boundary layer equation for this case are
enumerated, and it is shown that further similar solutions do

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Similar Solutions of the Equations of a Laminar Boundary Layer 40-22-2-19/21
in a Compressible Liquid in Presence of Heat Exchange

not exist.

Starting from the well-known boundary layer equations the system of initial equations is brought to a simpler form with the aid of a transformation given by Dorodnitsyn. For the case that the Prandtl number is $= 1$, the system of equations is split up into the following equations:

$$\varphi''' + 2\varphi\varphi'' = 0$$

$$g'' + 2\varphi g' + 4n\varphi'g = 0$$

The first of these equations is the well-known Blasius equation for the stream potential φ . The second equation renders it possible to determine the course of the temperature in the boundary layer. It can be solved with the aid of well-known methods, e.g. with the method of Galerkin.

It has to be emphasized that in the present case the notion of similarity refers to the coordinates of Dorodnitsyn. This similarity is not always identical with the similarity in the plane of the initial magnitudes.

There are 7 references, 3 of which are Soviet, 3 American, and 1 German.

Card 2/3

Similar Solutions of the Equations of a Laminar Boundary Layer in a Compressible Liquid in Presence of Heat Exchange 40-22-2-19/21

SUBMITTED: January 12, 1957

1. Laminar boundary layer--Mathematical analysis
2. Laminar boundary layer--Heat transfer

Card 3/3

POL'SKIY, N.I. (Irbit)

Mathematical lectures and olympiad for students of the 9th and
10th classes in Irbit. Mat. v shkole no.5:84-85 si-O '54.(MLRA 7:11)
(Irbit--Mathematics) (Mathematics--Irbit)

POL'SKIY, N.I.

Convergence of certain analytical methods of approximation. Ukr.mat.
zhur. 7 no.1:56-70 '55. (MIRA 8:7)

(Approximate computation) (Functional analysis)

Pol'skiy, N.I.

10(2) PHASE I BOOK EXPLOITATION SOV/2271

Soveshchaniye po prikladnoy gazovoy dinamike. Alma-Ata, 1955

Trudy (Transactions of the Conference on Applied Gas Dynamics) Alma-Ata, Izd-vo AN Kazakhskoy SSR, 1955. 235 p. Errata slip inserted.

Sponsoring Agency: Kazakhskiy gosudarstvennyy universitet imeni S.M. Kirova.

Ed.: V.V. Aleksandriyskiy, Tech. Ed.: Z.P. Korotkiy; Editorial Board: L.A. Yulis (Resp. Ed.), V.P. Kashkarov, Z.P. Leont'yeva, and B.P. Ustinov.

PURPOSE: This book should be of interest to scientists and engineers working on problems of applied gas dynamics and may be of use to students.

COVERAGE: This book presents reports and brief summaries of the discussions which took place at the Conference on Applied Gas Dynamics in Alma-Ata in October 1955. The conference was subdivided into three areas of applied gas dynamics: jet flows of fluids and gases, the aerodynamics of heating processes, and the discharge of a fluid. The practical value of the "Transactions" of the conference consists in the development of theory, methods of technical calculation and methods for systematic measurement applied to heating, furnace, and other industrial processes for which, in most cases, aerodynamic phenomena are decisive factors.

Yulis, L.A. Basic Results and Further Problems in the Investigation of Jet-like Motions of Fluids and Gases

Isat'yev, S.I. On the Turbulent Wake Behind a Body in a Two-dimensional Flow

Brief Summary of the Discussions

Session of October 24, 1955 (morning)

Antonova, O.S. Investigation of the Turbulence Characteristics of a Free Nonisothermal Jet and on Open Torch

Kashkarov, V.P. On the Motion in the Same and in Opposite Directions of Two Uniform Compressible-gas Flows

Leont'yeva, Z.P. Propagation of Axially Symmetrical Jets in Flows in the Same and in Opposite Directions

Bukharin, S.V. Laws of Motion and Laws of Combustion of Carbon Particles

Masarchuk, M.M. and M.I. Pol'yakiy. On the Critical Conditions for the Flow of a Viscous Gas in a Plane-parallel Channel

Brief Summary of the Discussions

Session of October 24, 1955 (evening)

Tsakhkina, M.M. Propagation of an Axially Symmetrical Gas Jet in a Gas Medium of Any Density

Chubrabat, P.J. Electrothermocomponents From MI (All-Union Electrotechnical Institute) and Their Use in the Investigation of Nonisothermal Gas Flows

Trofimov, A.P. Investigation of a Subbounded Jet

100 (1)

SOV/81-59-13-46011

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 13, p 251 (USSR)

AUTHOR: Pol'skiy, N.I.

TITLE: On the Possibility of Reducing Differential Equations of a Laminar
Boundary Layer to Ordinary Equations

PERIODICAL: Sb. tr. In-t teploenerg. AS UkrSSR, 1958, Nr 14, pp 117 - 121

ABSTRACT: The article has not been reviewed.



Card 1/1

67250

SOV/20-129-4-12/68

24.5200

~~24(8)~~
AUTHORS:

Nazarchuk, M. M., Pol'skiy, N. I.

TITLE:

The Asymptotic Behavior of the Solutions of a Problem of Heat Exchange

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 4, pp 759-761
(USSR)

ABSTRACT:

In some technical problems it is necessary to investigate problems concerning the heat exchange between a liquid or gaseous coolant and the solid particles suspended in it. In consideration of some simplifying conditions, many such problems may be reduced to the following: A heat-insulated vessel is assumed to be filled with a coolant, for which weight, specific heat, and temperature are given. At the instant $\tau = 0$ a mixture is filled into the vessel, which consists of sufficiently fine particles. The latter consist of n groups, each of which possesses definite values of the heat transfer coefficient, of the heat transfer area, of the specific heat, and of the total weight. The initial temperature of all particles is assumed to be equal to or less than the coolant temperature. If heat transfer occurs only between the coolant and the particles to be investigated, the following system of linear differential

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... a certain operator
... two operators. The eigenvalues of the operator

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SOV/20-129-4-12/68

The Asymptotic Behavior of the Solutions of a Problem of Heat Exchange

Δ are real numbers $\Delta_1, \Delta_2, \dots, \Delta_n$, which differ from one another. The operator A is one-dimensional: It conveys every vector $\vec{x} = \{x_i\}$ of the space into a one-dimensional totality of vectors $A\vec{x}$. If $a_1 > 0$, the operator $L = \Delta + A$ has no eigenvalues the real part of which would agree with one of the Δ_i . In each interval $(\Delta_1, \Delta_2); (\Delta_2, \Delta_3); \dots, (\Delta_{n-1}, \Delta_n); (\Delta_n, +\infty)$ there is at least one eigenvalue of the operator $M = \Delta + \varepsilon B$, where $\varepsilon > 0$ holds, and B is given by a matrix, the elements of which are all equal to unity. Theorem 1 of the present paper says: All eigenvalues $\lambda_1, \lambda_2, \dots, \lambda_n$ of the matrix L are real and they all lie within the above-mentioned intervals. The general solution of the initially written system of equations may be written down in the form

$$x_i = \sum_{k=1}^n \alpha_i^{(k)} e^{-\lambda_k \tau} \quad (i = 1, 2, \dots, n).$$

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Here the $\alpha_1^{(k)}, \alpha_2^{(k)}, \dots, \alpha_n^{(k)}$ denote the components of the

Card 4/4

ROL'SKIY, N.I.

Call Nr: AF 1108825

Transactions of the Third All-union Mathematical Congress (Cont.) Moscow
Jun-Jul '56, Trudy '56, V. 1, Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 237 pp.

Pentkovskiy, M. V. (Leningrad). On the Best Transformation
of Nomograms From Adjusted Points. 194-195

Pentkovskiy, M. V. (Leningrad). New Method of Projective
Transformation of Nomograms on a Net. 195

Pol'skiy, N. I. (Kiyev). Galerkin's Method and its
Substantiation. 195-196

Mention is made of Galerkin, A. A., Keldysh, M. V.,
Petrov, G. I., Kantorovich, L. V., Mikhlin, S. G.
Bogolyubov, N. N., Krylov, N. M., Krasnosel'skiy, M. A.,
and Vishik, M. I.

There are 8 references, all of them USSR.

Purto, V. A. (Moscow), Moloshnaya, T. N. (Moscow).
On Translation by Machinery From English Into Russian. 196

Card 63/80

*

S/124/63/000/002/008/052
D234/D308

AUTHORS: Nazarchuk, M.M. and Pol'skiy, N.I.

TITLE: Crisis during the flow of a viscous gas in a plane-parallel channel

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 2, 1963, '68, abstract 2B426 (Tr. Soveshchaniya po prikl. gaz. dinamike, 1956, Alma-Ata, AN KazSSR, 1959, 69-76. Discussion 75-76)

TEXT: Theoretical investigation of plane parallel adiabatic motion of a viscous gas in a channel of constant cross-section. Using Prandtl's equations and assuming that the velocity profile is convex in the direction of motion, the authors show that, when crisis is reached, the velocity on the channel axis is equal to the local velocity of sound, and the average velocity of the stream is less than the velocity of sound. This conclusion is reached for both laminar and turbulent flow. However, the results of the paper do enable the position of this critical section to be determined. The

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S/124/63/000/002/008/052
D234/D308

Crisis during the flow ...

authors point out the contradiction between the results of the paper and the conclusion of B.A. Zhestkov who showed that, when crisis is reached, the velocity on the channel axis exceeds that of sound, and the average velocity is equal to the local velocity of sound (B.A. Zhestkov, O laminatnoi techenii vyazkogo gaza v ploskom kanale s teploizlirovannymi stenkami (On the laminar flow of viscous gas in a plane channel with thermally insulated walls) M., 1947).

[Abstracter's note: Complete translation]

Card 2/2

POL'SKIY, N.I.

Projection methods in applied mathematics. Dokl. AN SSSR 143
no.4:787-790 Ap '62. (MIRA 15:3)

1. Institut teploenergetiki AN USSR. Predstavleno akademikom
A.Yu. Ishlinskim.

(Projection)

FOL'SKIY, P. I.

FA 170T79

USSR/Meteorology - Circulation

Dec 48

"Practical Use of Data on the Store of Circulation Solenoids in the Atmosphere," P. I. Pol'skiy

"Meteorol i Gidrol" No 6, pp 34-41

Calculates specific number of circulation solenoids (number in vertical slice 1 km high and 1° long in length) for 4 different synoptic situations. Recommends use of this characteristic in airways forecasting procedure, since it can be used to determine whether layer contains frontal zone, inversion zone, or homogeneous air mass. Submitted 28 Jul 47.

FDD

170T79

POL'SKIY, P.I.

Aerosynoptic conditions for significant rainfalls in the
Crimea. Trudy UkrNIGMI no.27:26-36 '61. (MIRA 16:7)

(Crimea--Rain and rainfall)

POLISKIY, P.I.

Atmosphere

Practical use for data on the reserve of circulation solenoids in the atmosphere. Met.
i gidrol. No. 6, 1948

9. Monthly List of Russian Accessions, Library of Congress, ~~November~~² 1953, Uncl.

ROGOVOY, Pavel Prokof'evich, professor; YANOVICH, Ivan Parfir'yevich,
dotsent; ~~POLESKIY, S.~~ redaktor; ~~TRUKHANOVA, A.~~, tekhnicheskij
redaktor

[Flood lands of the Dnieper, Sozh, and Pripyet Rivers (in the
White Russian S.S.R.) and their economic development] Poimny rek
Dnepra, Sozha i Pripiati (v predelakh BSSR) i ikh khoziaistvennoe
ispol'zovanie. Minsk, Gos.izd-vo BSSR, 1957. 237 p. (MLRA 10:9)
(White Russia--Alluvial lands)

EL'BERT, B.Ya., professor, zasluzhennyy deyatel' nauki; RUBINSHTEYN, I.S., dotsent; SAKOVICH, A.O., dotsent; VILENCHIK G.Yu., kandidat meditsinskikh nauk; GUREVICH, G.TS, kandidat meditsinskikh nauk; IZRAITEL', N.A., kandidat meditsinskikh nauk; KNIGA, A.N., kandidat meditsinskikh nauk; LEVINA, P.I., kandidat meditsinskikh nauk; MARCHENKO, L.O., kandidat meditsinskikh nauk; RABINOVICH, Ye.M., kandidat meditsinskikh nauk; RUBINSHTEYN, B.B., kandidat meditsinskikh nauk; SAMOKHINA, Z.F., kandidat meditsinskikh nauk; KRASIL'NIKOV, A.P., kandidat meditsinskikh nauk; ZMUSHKO, L.S., nauchnyy sotrudnik; NISENBAUM, I.M., nauchnyy sotrudnik; SOLOV'YANCHIK, S.I., nauchnyy sotrudnik; SUSLOVA, M.N., nauchnyy sotrudnik; ~~POLISKIY, S.~~ redaktor; KUFTINA, P., tekhnicheskii redaktor; KALECHITS, G., tekhnicheskii redaktor.

[Practical manual on medical microbiology and bacteriological methods of sanitation research] Prakticheskoe posobie po meditsinskoj mikrobiologii i sanitarno-bakteriologicheskim metodam issledovani. Minsk, Gos.izd-vo BSSR, Redaktsiya nauchno-tekhn. lit-ry, 1957. 356 p. (MLRA 10:6)

(MICROBIOLOGY)

MAKHNACH, Aleksandr Samenovich; VOZNYACHUK, Leonid Nikolayevich [Vazniachuk, L.M.]; POL'SKIY, S. [Pol'ski, S.], red.; STEPANOVA, N. [Stepanova, N.], tekhn.red.

[Geological past of White Russia; touring mineral resources]
Geologichnae minulae Belarusi; padarozhzhha u netry Belarusi.
Minsk, Dziarzhhaunae vyd-va BSSR. Red.naukova-tekhn.lit-ry,
1959. 213 p. (MIRA 13:4)
(White Russia--Geology)

MOLOCHKOV, A.V.; TALAKO, G.S.; POL'SKIY, S., red.; TRUKHANOVA, A., tekhn.
red.

[How to read blueprints] Kak chitat' tekhnicheskii chertezh. Minsk,
Gos. izd-vo BSSR. Red. nauchn.-tekhn.lit-ry. 1958. 145 p. (MIRA 11:4)
(Blueprints)

SUPRON, L.F.; ZVEREV, F.P.; MUKHIN, A.P., prof., red.; POL'SKIY, S.,
red.; STEPANOVA, N., tekhn.red.

[Medical care of the population subjected to methods of mass
destruction] Meditsinskoe obespechenie naselenia v usloviakh
primeneniia sredstv massovogo porazheniia. Pod red. A.P.Mukhina.
Minsk, Gos.izd-vo BSSR. Red.nauchno-tekhn.lit-ry, 1959. 407 p.
(MIRA 12:9)

(ATOMIC MEDICINE)

CHISTOP"YANOV, Dmitriy Fedorovich [Chystap'ianau, D.F.]; POL'SKIY, S.
[Pol'ski, S.], red.; STEPANOVA, N. [Stsiapanova, N.], tekhn.red.

[Mysterious continent] Taimnichy matsiaryk. Minsk, Dziarzh.
vyd-va BSSR, Red.navukova-tekhn.lit-ry, 1959. 136 p.

(MIRA 13:12)

(Antarctic regions)

MAKAROCHKIN, Mikhail Fedorovich, prof.; PETROVICH, Aleksandr Grigor'yevich,
inzh.; POL'SKIY, S., red.; KARPINOVICH, Ya., tekhn.red.

[Foundations and their construction for buildings of few stories]
Fundamenty dlia maloetazhnogo stroitel'stva i proizvodstvo rabot
po ikh vozvedeniiu. Minsk, Gos.izd-vo BSSR. Red.nauchno-tekhn.
lit-ry, 1960. 71 p. (MIRA 13:12)
(Foundations)

MAKAROCHKIN, Mikhail Fedorovich; SHARAY, Vera Nesterovna; LOVYGIN,
Nikolay Ivanovich; POL'SKIY, S., red.; STEPANOVA, N., tekhn.red.

[Composition and engineering properties of the loess-type soils
of White Russia] Sostav i stroitel'nye svoistva lessovidnykh
gruntov BSSR. Minsk, Gos.izd-vo BSSR, Red.nauchno-tekhn.lit-ry,
1959. 122 p. (MIRA 13:12)
(White Russia--Loess)

ZABLOTNIKOVA, Liliya Mikhaylovna; KOZEL, Vladimir Ignat'yevich;
POL'SKIY, S., red.; STEPANOVA, N., tekhn.red.

[Plastics in the national economy] Plasticheskie massy v narod-
nom khoziaistve. Minsk, Gos.izd-vo BSSR, Red.nauchno-tekhn.
lit-ry, 1960. 53 p. (MIRA 13:11)
(Plastics)

RUTSKIY, A.I., kand. tekhn. nauk, zasl. deyatel' nauki i tekhniki
BSSR; ZAGONOVSKIY, Ye.N., inzh.; SLEPYAN, Ya.Yu., kand.
tekhn. nauk; NOVAKH, V.I., kand. ~~tekhn. nauk~~; TINYAKOV, N.A.,
kand. tekhn. nauk; POL'SKIY, S., red.; KALECHITS, G., tekhn.
red.; DOMOVSKAYA, G., tekhn. red.

[Electrician's manual] Spravochnoe posobie elektromontera.
2., perer. izd. Pod red. A.I.Rutskogo. Minsk, Gos. izd-vo
BSSR. Red. nauchno-tekhn. lit-ry, 1961. 377 p.

(MIRA 15:4)

(Electric engineering--Handbooks, manuals, etc.)

MEREZHINSKIY, M.F.; POL'SKIY, S., red.; STEPANOVA, N., tekhn.red.

[Mode of action and biological role of vitamins; main group
of vitamins connected with biological oxidation] Mekhanizm
deistviia i biologicheskoi rol' vitaminov; osnovnaia gruppa
vitaminov biologicheskogo okisleniia. Minsk, Gos.izd-vo
BSSR. Red.nauchno-tekhn.lit-ry, 1959. 271 p. (MIRA 13:1)
(VITAMINS) (OXIDATION, PHYSIOLOGICAL)

LEZHNEV, G.G.; MENZHINSKIY, A.I.; POL'SKIY, S., red.; TRUEKHANOVA, A.,
tekhn.red.

[Settlements in capital construction] Raschety v kapital'mom
stroitel'stve. Minsk, Gos.izd-vo BSSR, 1958. 322 p. (MIRA 11:12)
(Construction industry--Finance)

POL'SKIY, S.

Eliminate admitted errors. Neft.khoz.33 no.6:91 D '55.
(Petroleum) (MLRA 9:2)

VLADIMIROV, Yevgeniy Vladimirovich, inzh.; DNEPROVSKIY, Yevgeniy Vasil'yevich, inzh. Prinimel uchastiye GORANSKIY, G.K., kand.tekhn.nauk; POL'SKIY, S., red.; STEPANOVA, N., tekhn.red.

[Effective and automatic checking of machined parts on automatic machine tools and automatic lines] Aktivnyi i avtomaticheskii kontrol' detalei na stankakh-avtomatakh i avtomaticheskikh liniyakh. Minsk, Gos.izd-vo BSSR. Red.nauchno-tekhn.lit-ry, 1960. 138 p.

(MIRA 13:10)

(Machinery, Automatic)

(Machine-shop practice)

Pol'skiy, S

AID P - 3979

Subject : USSR/Engineering

Card 1/1 Pub. 78 - 24/27

Author : Pol'skiy, S.

Title : Olenov, N. M. Khraneniye nefti, nefteproduktov i gaza (Storage of oil, oil products and gas). Gostoptekhhizdat, 1954 and Baysh, L. G. and V. A. Nikitina. Izmereniye raskhoda i urovniya zhidkostey i gazov v neftepere-rabotke (Measurements of the output and the level of liquids and gases in oil processing). Gostoptekhhizdat, 1954. (Book reviews).

Periodical : Neft. khoz., v. 33, #12, 91, D 1955

Abstract : The author critically appraises these two textbooks published in 1954 by Gostoptekhhizdat. He points out many mistakes, especially in the description of liquid and gas volume meters.

Institution : None

Submitted : No date

GORANSKIY, Georgiy Konstantinovich; POL'SKIY, S., red.; STEPANOVA, N.,
tekhn. red.

[Efficient operation of machine tools] Ratsional'noe ispol'zovanie
metallorazhreshchikh stankov. Minsk, Gos. izd-vo BSSR. Red. nauchno-
tekhn. lit-ry, 1960. 226 p. (MIRA 14:7)
(Machine tools)

SITNIKOV, Oleg Stepanovich; POL'SKIY, S., red.; STEPANOVA, N., tekhn.
red.

[Multipurpose attachments with interchangeable parts used in piece
and small-lot manufacture of machinery] Universal'no-sbornye priipo-
sobleniia v edinichnom i melkoseriinom mashinostroenii. Minsk, Gos.
izd-vo BSSR Red. nauchno-tekhn lit-ry, 1961. 91 p. (MIRA 14:8)
(Interchangeable mechanisms)

DOBROLYUBOV, Anatoliy Ivanovich; POL'SKIY, S., red.; STEPANOVA, N.,
tekhn. red.

[Improving the performance of hydraulic electric control devices
of machine tools; detection and elimination of defects] Metody
povysheniia ekspluatatsionnykh kachestv gidroelektroavtomatiki
stankov; nakhozhdenie i ustranenie neispravnostei. Minsk, Gos.
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(Electric controllers)

(Hydraulic control)

GORBATSEVICH, Aleksandr Feliksovich; KUZNETSOV, Vladimir Petrovich; YUDOVIN, Lev Grigor'yevich; POL'SKIY, S., red.; DOMOVSKAYA, G., tekhn. red.

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(Broaching machines) (Automation)

YAKOVLEV, Nikolay Feofilovich, kand.tekhn.nauk; POL'SKIY, S., red.;
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[Manual for mechanics of woodworking enterprises] Spravochnik
mekhanika derevoobrabatyvaiushchego predpriatiia. Minsk, Gos.
izd-vo BSSR, Red.nauchno-tekhn.lit-ry, 1961. 400 p.

(MIRA 14:6)

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KARYAGIN, Anatoliy Vasil'yevich; SOLOV'YEV, Georgiy Mikhaylovich;
POL'SKIY, S., red.; STEPANOVA, N., tekhn.red.

[Driver's training manual] Posobie dlia podgotovki shoferov.
Minsk, Gos.izd-vo BSSR. Red.nauchno-tekhn.lit-ry, 1961. 383 p.
(MIRA 14:6)

(Automobile drivers)

MAKAROCHKIN, Mikhail Fedorovich, doktor tekhn. nauk; SITNIKOV,
Mikhail Aleksandrovich, kand. tekhn. nauk; POL'SKIY, S.,
red.; BELEN'KAYA, I., tekhn. red.

[Prefabricated foundations of buildings] Industrial'nye
fundamenty zdani. Minsk, Gps.izd-vo BSSR. Red.nauchno-
tekhn.lit-ry, 1962. 303 p. (MIRA 16:3)
(Foundations)

MAKAROVICHIN, Mikhail Fedorovich, doktor tekhn. nauk; SITNIKOV,
Mikhail Aleksandrovich, kand. tekhn. nauk; POL'SKIY, S.,
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Minsk, Gos. izd-vo BSSR. Red. nauchno-tekhn. lit-ry, 1961. 121 p.
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ATAYEV, Sergey Sergeyevich; VINOKUROV, F.P., prof., red.; POL'SKIY, S.,
red.; STEPANOVA, N., tekhn.red.

[Mechanization of operations in modern housing construction;
mechanization of conveying and assembling operations] Mekhani-
zatsiia rabot v sovremennom zhilishchnom stroitel'stve; mekhani-
zatsiia transportno-montazhnykh rabot. Pod red. F.P.Vinokurova.
Minsk, Gos.izd-vo BSSR. Red.nauchno-tekhn.lit-ry, 1960. 356 n.
(MIRA 13:7)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury
SSSR (for Vinokurov).

(Cranes, derricks, etc.)

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POL'SKIY, S.M.; TSENTSIFER, E.B., vedushchiy redaktor; TROFIMOV, A.V.,
tekhnicheskiy redaktor

[Volumetric measuring devices for petroleum products] Ob"emnye
schetchiki dlia nefteproduktov. Moskva. Gos. nauchno-tekhn. izd-vo
neftianoi i gorno-toplivnoi lit-ry, 1956. 59 p. (MLBA 9:7)
(Flow meters) (Petroleum--Pipelines)

POL'SKIY, S.M.; FREYBERG, S.I., prof., red.

[Present-day designs of volumetric meters used for petroleum products] Sovremennye konstruktsii ob'emykh schetchikov dlia nefteproduktov. Pod red. S.I. Freiberga. Moskva, Vses. in-t nauchnoi i tekhn. informatsii, 1958. 68 p. (MIRA 11:9)
(Flow meters) (Petroleum industry--Equipment and supplies)

POL'SKIY, S.M.

Selecting the indices for the economic efficiency of automatic
control on tank farms. Neft. khoz. 42 no.3:52-56 Mr 1963.

(MIRA 17/1963)

BLEYKHER, E.M.; POL'SKIY, S.M.; CHERNIKIN, V.I.

Determining the optimal number of pouring devices in distribution tank farms. Transp. i khran. nefiti i nefteprod. no.7:10-13
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1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut
neftekhimicheskoy i gazovoy promyshlennosti im. akad. Gubkina
i Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii.

POL'SKIY, Svyatoslav Mikhaylovich; ZUBAREVA, Ye.I., ved. red.;
BASHMAKOVA, G.M., tekhn. red.

[New flowmeters and consumption meters in the petroleum and
petrochemical industries abroad] Novye zhidkostnye schetchiki
i raskhodometry v neftekhimicheskoi promyshlennosti za rube-
zhom. Moskva, Gostoptekhizdat, 1962. 76 p. (MIRA 15:10)
(Flowmeters)

(Petroleum industry--Equipment and supplies)

12017

S/048/62/026/011/009/021
B125/B102

7/1/30

AUTHOR: Pol'skiy, V. G.
TITLE: Study of the effect of dynamic fatigue on photocathodes
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
v. 26, no. 11, 1962, 1396 - 1398

TEXT: Certain types of photoelectronic multipliers show a dependence of the pulse heights on the counting rate and on the amplification. The dependence of the "second" pulse amplitude on the time interval between the pulses was studied on photomultipliers of the types $\phi\text{ЭУ}-33$ (FEU-33), $\phi\text{ЭУ}-36$ (FEU-36), $\phi\text{ЭУ}-18$ (FEU-1V), $\phi\text{ЭУ}-13$ (FEU-13), $\phi\text{ЭУ}-11$ (FEU-11), RCA-6810, RCA-6342 in order to estimate the possible errors of measurement and to investigate the dependence of the amplification on the pulse amplitude. The dependence of the amplification factor of some Soviet multipliers on the pulse amplitude makes it very difficult to analyze certain nuclear processes by using scintillation counters. The nominal value of the amplification factor of all FEU-33 models studied is restored after $T_{\text{rest}} \leq 3 \mu\text{sec}$. T_{rest} of FEU-36, RCA-6810 and RCA-6342 is 15 to 20 μsec .

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Study of the effect of...

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anodic pulses. Fatigue can be used practically in devices for producing electric standard pulses of $\sim 10^{-9}$ sec with arbitrary durations of the light pulses. ✓

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SOV/48-22-8-18/20

AUTHORS: Berkovskiy, A. G., Leyteyzen, L. G., Pol'skiy, V. G.

TITLE: Industrial Photoelectronic Multipliers With an Improved Time Resolution and Strong Output Currents (Promyshlennyye fotoelektronnyye umnozhiteli s uluchshennym vremennym razresheniyem i bol'shimi vykhodnymi tokami)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol. 22, Nr 8, pp. 1002 - 1004 (USSR)

ABSTRACT: In the conference (Ref 1) last year preliminary data on the new 13-cascade multiplier (FEU - photoelectronic multiplier - FEM) were communicated. This device serves for the investigation of nuclear processes with a fast sequence. The investigations of the parameters and of the characteristics of the FEM-33 recently carried out by the authors yielded the following results: according to the technical assumptions the integral sensitivity of the cathodes of the FEM-33 as well as of the FEM-29 should not be below $30 \mu A \text{ lm}^{-1}$. The mean integral sensitivity of the multiplier cathode which was developed in the last two months amounted to $40 \mu A \text{ lm}^{-1}$. The dependence

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of the amplification of the supply voltage of three specimens of the FEM-33 are given in figure 2 (continuous curves). For comparison the characteristics of three 14-cascade multipliers RCA-6810 are given with dotted lines. These curves were taken under the same conditions. Measurements of the amplitude resolution of the FEM-33 showed that it is by no means inferior to other FEM's. The noise level of the FEM-33 according to the scale of the NaJ-(Tl)-Cs¹³⁷ is of the order 3 - 4 keV (at a counting rate of 50 pulses per sec). The classification of 50 specimens of FEM-33 according to the pulsed output current is given in figure 3. The weakest currents equaled 0,3 A, the highest about 1 A. Investigations of the linearity of the output currents at a voltage of the order of 4 kV showed that on the average the FEM-33 operate linearly up to 0,5 A. The deviations range from 0,4 to 0,8 A (Fig 8). The width of the coincidence curve of 2 specimens of FEM-33 with a crystal and with a preparation Co⁶⁰ in the coincidence circuit is between the limits of 2 to 4 microcoulomb . sec (at a counting efficiency of 50%). The data obtained by oscillographs showed that the

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pulse rise times approximately equal from 2,5 to 3 microcoulomb.sec and their general resolution is somewhat above 10 microcoulomb.sec (Fig 5).

There are 5 figures and 1 reference, which is Soviet.

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S/048/60/024/03/19/019
B006/B014

AUTHORS: Berkovskiy, A. G., Pol'skiy, V. G.

TITLE: Dependence of the Amplification of Photoelectronic
Multipliers on the Amplitude of Pulses and the Time
Intervals Between Them

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960,
Vol. 24, No. 3, pp. 377-379

TEXT: The article under review was read at the Tenth All-Union Conference of Nuclear Spectroscopy (Moscow, January 19 - 27, 1960). The dependence of the amplification of photomultipliers on the mode of pulse operation leads to considerable difficulties in the case of certain energy measurements. In order to be able to estimate the errors arising within a large range of the counting rate, the authors developed a special apparatus to be used for the investigation of photomultipliers (above all, such of the type FEU-33). Fig. 1 shows the principal circuit diagram of the apparatus, which is described by way of introduction. The

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Dependence of the Amplification of
Photoelectronic Multipliers on the
Amplitude of Pulses and the Time Intervals
Between Them

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apparatus used an IO-4 oscilloscope. A special quick oscilloscope (Ref. 4) had to be employed for investigations in the range of nanoseconds. The dependence of the amplitudes of the "second" pulses on the time interval between pulses was investigated on the types: FEU-33⁸ (30 units), FEU-11² (2 units), FEU-13³ (2 units), RSA-6810A⁶ (1 unit), and RSA-6342⁷ (3 units). The feed voltage was 3 - 4 kv. No relationship between amplitude and time interval was found on FEU-11 and FEU-13, whereas it was very strong in the case of RSA-6810A and RSA-6342. Fig. 2 shows the amplification coefficient as a function of the time interval between two pulses. FEU-33 had a recovery time ≤ 3 , which was between 15 and 20 μ sec in the case of RSA multipliers. The same instrument also served to investigate the dependence of the amplitudes of the "second" pulse on those of the "first" pulse at time intervals of between 0.1 and 2.5 μ sec. Results obtained for an FEU-33 multiplier are shown in Fig. 3. With widening amplitude of the "first" pulse, the amplitude of the "second" decreases. The slopes of curves may vary greatly from one photomultiplier to another. There are 3 figures and 4 references, 1 of which is Soviet.

VB

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ZARINSKIY, V.A.; KOSHKIN, D.I.; POL'SKIY, V.G.; GENKINA, L.A.

Control of water purification by electrical conductivity. Vest.
AN SSSR 26 no.4:36-38 Ap '56. (MIRA 9:7)
(Water--Purification) (Electric measurements)

84942

S/109/60/005/009/027/030/XX
E032/E514

9.4/30(2201,2301,2801,3001,2104)

AUTHORS:

Berkovskiy, A. G. and Pol'skiy, V. G.

TITLE:

A Study of the Time Resolution of Photomultipliers²⁵ Using
the Oscillographic Method

PERIODICAL:

Radiotekhnika i elektronika, 1960, Vol. 5, No. 9,
pp. 1475-1477 + 1 plate

TEXT:

A description is given of a method of measuring the time resolution of photomultipliers using a fast oscillograph and periodic light flashes of nanosecond duration. The oscillograph employed was described by Pol'skiy in Ref. 1 and the light flashes were obtained by spark discharge. The flash repetition frequency was adjusted to a few hundreds of kc/s and the time base of the oscillograph was triggered by synchronizing pulses from the flash generator. For each photomultiplier optimum supply conditions were first determined, giving rise to the maximum pulse amplitude. The slope of the leading edge of anode pulses S and the amplitude of the pulses were measured. The length of the leading edge was defined as the 10%-90% rise. The slope S was defined as the amplitude of the pulse divided by the length of the leading edge (in units of mA/nanosec). Thirty ФЭУ-33 (FEU-33) photomultipliers were investigated. The

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A Study of the Time Resolution of Photomultipliers Using the Oscillographic Method

maximum value of S was found to be 350 mA/nanosec. Other photomultipliers tested were two FEU-11 ($S = 20$ and 100 mA/nanosec respectively), one FEU-13 ($S = 150-200$ mA/nanosec) and RCA 6810A ($S = 200$ mA/nanosec). In the case of the FEU-33 photomultiplier, the amplitude was found to lie between 0.3 and 1.1 A and in 75% of them the amplitudes were between 0.4 and 0.8 A. The output pulse amplitudes for the other photomultipliers were roughly within the same limits. The measured pulse length t_p (measured at the base of the pulse) was found to be: 20 nanosec (FEU-33), 100 nanosec (FEU-11), 40 nanosec (FEU-13), 30 nanosec (RCA-6810A), 20 nanosec (RCA-6342) and 6-9 nanosec (special photomultiplier with time spread compensation). In the latter case the leading edge slope was found to be 400 mA/nanosec on the average. The spread in the transit times of photoelectrons was measured by illuminating the central part of the cathode (diameter 5 mm) and then using special screens with narrow annular apertures, the peripheral parts of the cathode. The results obtained for the time spread are summarised

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